

# Temporoparietal fascia flap and total temporomandibular joint replacement for the management of patent foramen of Huschke

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**Abstract.** Spontaneous herniation of the condylar head into the external auditory canal (EAC) through the foramen of Huschke is extremely rare, with approximately 30 cases reported in the international literature. The typical presentation is a constellation of non-specific symptoms including otalgia, temporomandibular joint (TMJ) pain, malocclusion, otorrhea, tinnitus while chewing, and hearing loss. Clinical examination may reveal pain, granulation tissue in the EAC, or the exposed mandibular condyle with the mouth closed. With mouth opening, the tissue or exposed bone retracts anteriorly leaving an often normal-appearing EAC. Having the patient open and close the mouth while performing otoscopy will show the displacement of tissue, which is critical for diagnosis of the condition. Radiographic examination with a computed tomography scan typically reveals a discontinuous anterior wall of the EAC with visible soft tissue in the protruding in the EAC. A case of spontaneous TMJ herniation into the EAC in a 54-year-old male patient with a history of otalgia and malocclusion is reported here. Total joint replacement therapy for the treatment of this rare condition is reported, and its importance in providing a posterior mechanical stop to prevent joint relapse is discussed.

**Key words:** spontaneous TMJ herniation; otalgia; total joint replacement; temporoparietal fascia flap.

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In 1987, Hawke et al. described the first case of spontaneous herniation of the condylar portion of the temporomandibular joint (TMJ) into the external auditory canal (EAC) through a patent foramen of Huschke.<sup>1</sup> Trauma, inflammation, and

a mass effect are known causes of displacement of the TMJ into the EAC, with cholesteatoma and trauma as the leading causes.<sup>2–4</sup> Spontaneous herniation of the condylar head into the EAC through the foramen of Huschke is extremely rare,

with approximately 30 cases reported in the literature.

Symptomatic spontaneous herniation of the TMJ into the EAC typically presents with non-specific symptoms including otalgia, TMJ pain, malocclusion, otorrhea,

tinnitus while chewing, and hearing loss.<sup>2,3</sup> Clinical examination may reveal pain, granulation tissue in the EAC, or the exposed mandibular condyle with the mouth closed. With mouth opening, the tissue or exposed bone retracts anteriorly leaving an often normal-appearing EAC. Having the patient open and close the mouth while performing otoscopy will show the displacement of tissue, which is critical for the diagnosis of the condition. Radiographic examination with a computed tomography (CT) scan typically reveals a discontinuous anterior wall of the EAC with visible soft tissue in the protruding in the EAC.<sup>3</sup>

Indications for treatment include persistent otorrhea, otitis externa, pain, hearing loss, tinnitus, malocclusion, and comorbid medical conditions such as diabetes. Conservative therapy consisting of an anxiolytic, muscle relaxant, and soft diet is advocated for patients with minor symptoms, while surgical repair of the EAC with fascia, cartilage graft, polyethylene, polypropylene, or a titanium miniplate is advocated for patients with significant discomfort.<sup>5,6</sup>

A case of spontaneous TMJ herniation into the EAC in a 54-year-old male patient with a history of otalgia and malocclusion, treated with a unilateral total joint replacement and an interpositional temporoparietal fascia rotational flap, is reported herein.

### Case report

A 54-year-old male was referred to the oral and maxillofacial surgery service for the evaluation of intermittent left ear and jaw pain of 4-month duration. The patient reported morning otalgia in the left TMJ, intermittent left tinnitus, and tenderness of the masseter and temporalis muscles upon mastication. The patient had no history of middle ear or EAC infections. The patient had a medical history significant for hypertension, as well as type II diabetes diagnosed 3 years previously, with most recent glycated hemoglobin (HbA1c) at 5.8%. The patient denied any history of trauma to the area of the left ear and jaw. Prior to presentation, the patient underwent a non-contrast CT evaluation that demonstrated fluid and gas in the left TMJ and masticator and parotid spaces, as well as erosion of the anterior wall of the EAC with soft tissue herniation (Fig. 1). Subsequent magnetic resonance imaging (MRI) was negative for tumor.

At the authors' facility, the patient demonstrated a wet-popping sound upon mouth opening, with a left posterior cross-bite, 5-mm midline shift, and

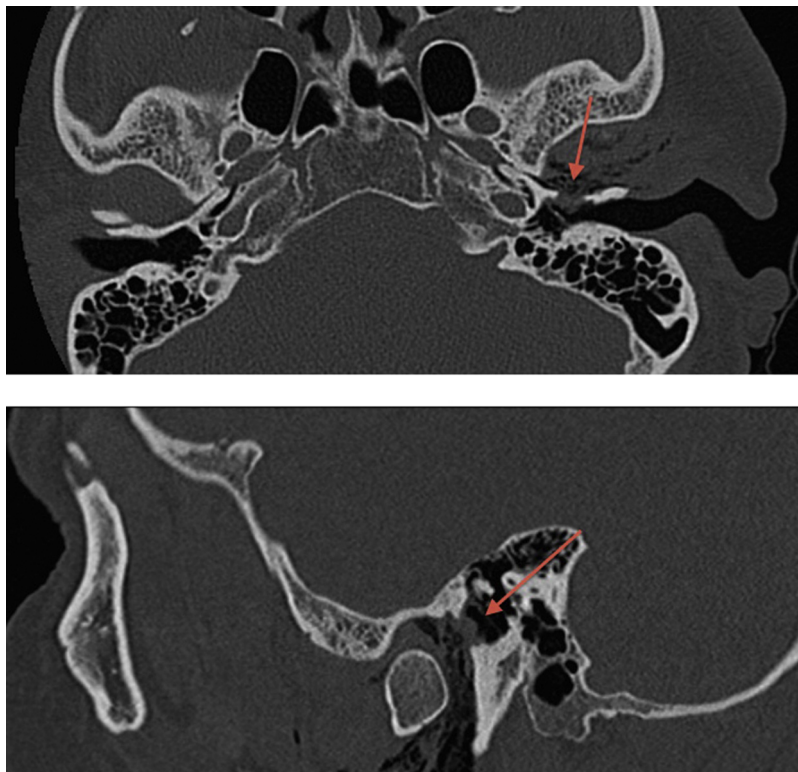


Fig. 1. CT axial and sagittal view demonstrating the herniation of soft tissue (arrow) through the patent foramen of Huschke into the external auditory canal.

leftward deviation of the mandible. Otoscopic examination of the EAC revealed the head of the left mandibular condyle to be present in the anterior–inferior aspect of the EAC in closed mouth position, and retraction of the mass in open mouth position (Fig. 2, Video 1).

At the authors' facility, the patient demonstrated a wet-popping sound upon mouth opening, with a left posterior cross-bite, 5-mm midline shift, and leftward deviation of the mandible. Otoscopic examination of the EAC revealed the head of the left mandibular condyle to be present in the anterior–inferior aspect of the EAC in closed mouth position, and

retraction of the mass in open mouth position (Fig. 2, Video 1).

After a discussion with the referring otolaryngologist, the decision was made to perform a discectomy, alloplastic total joint reconstruction of the left condyle, and repair of the left EAC with a temporoparietal fascia flap via pre-auricular approach (Fig. 3). Following surgery, the patient reported complete resolution of his otalgia and tinnitus. The patient's maximal inter-incisal opening returned to its pre-surgical state, with full resolution of his preoperative malocclusion, which has remained stable for the 6 months since his procedure.

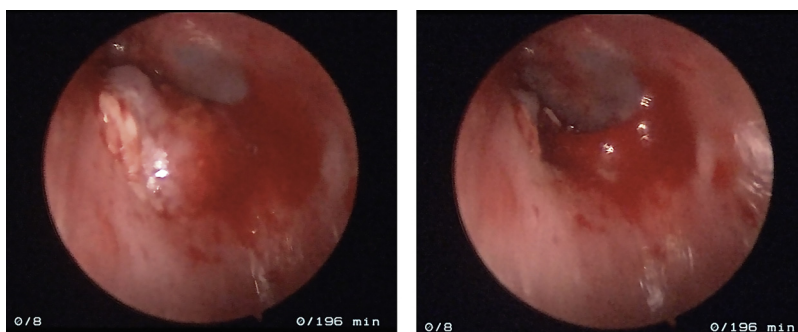


Fig. 2. Preoperative oto-endoscopic examination demonstrating a mass-like lesion on the anterior wall of the left external auditory canal, which retracts with mouth opening.

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